

*approximately 10 seconds, then use it again.*

Table 3, at the end of the chapter, lists possible starter problems, probable causes and most common remedies.

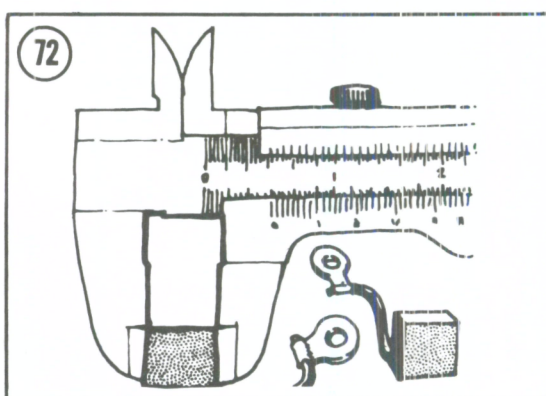
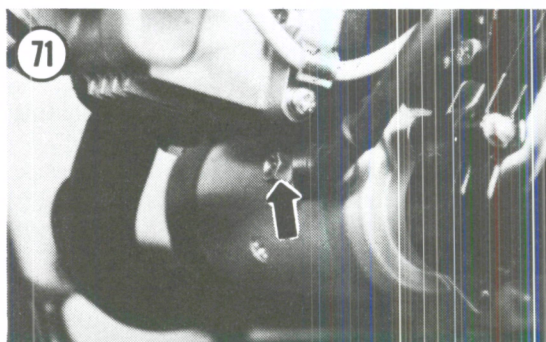
### STARTER

The overhaul of a starter motor is best left to an expert. The disassembly/inspection/assembly procedure shows how to detect a defective starter.

The starter gears are covered in Chapter Four.

#### Removal/Installation

1. Remove the seat/rear fender assembly.
2. Unscrew the wing bolts securing the battery cover and remove the cover (Figure 36).
3. Disconnect the battery negative lead.
4. Remove the bolts (Figure 69) on the left-hand crankcase spacer cover.
5. Remove bolts (Figure 70) securing the starter bracket on the right-hand side.
6. Pull back the rubber cap and disconnect the black electric starter cable from the starter (Figure 71).
7. Pull the starter to the right and disengage the splines of the starter from the starter idler gear.
8. Install by reversing these removal steps.



#### Disassembly/Inspection/Assembly

1. Remove the bolts and remove the end cap from the motor assembly.

#### NOTE

*Write down the number of shims used on the shaft next to the commutator. Be sure to install the same number when reassembling the starter.*

2. Clean all grease, dirt and carbon from the armature and the end cap.

#### CAUTION

*Do not immerse brushes or the wire windings in solvent as the insulation may be damaged. Wipe the windings with a cloth lightly moistened with solvent and dry thoroughly.*

3. Move the tension spring out from the backside of each brush and pull the brush out of its receptacle in the brush plate. Measure the length of each brush with a vernier caliper (Figure 72). Standard new brush length is 12-13 mm (0.47-0.51 in.). If the length of either brush is 6.5 mm (0.26 in.) or less, replace both brushes as a set.



4. To replace the brushes, remove the screw securing each brush to the brush plate and remove each brush assembly.

5. Reinstall each brush and tighten the mounting screws securely.

6. When reinstalling the brush into its receptacle in the brush plate, make sure the tension spring is properly located within the notch in the end of each brush.

7. Inspect the condition of the commutator. The mica in a good commutator is below the surface of the copper bars. On a worn commutator the mica and copper bars may be worn to the same level (**Figure 73**). If necessary, have the commutator serviced by a dealer or electrical repair shop.

8. Inspect the commutator copper bars for discoloration. If a pair of bars are discolored, grounded armature coils are indicated.

9. Use an ohmmeter and check for continuity between the commutator bars (**Figure 74**); there should be continuity (low resistance) between pairs of bars.

10. Also check for continuity between the commutator bars and the shaft (**Figure 75**); there should be no continuity (infinite resistance). If the unit fails either of these tests the armature is faulty and must be replaced.

11. Use an ohmmeter and check for continuity between the starter cable terminal and the starter case; there should be no continuity. Also check continuity between the starter cable terminal and each brush wire terminal; there should be continuity. If the unit fails either of these tests the starter motor assembly must be replaced.

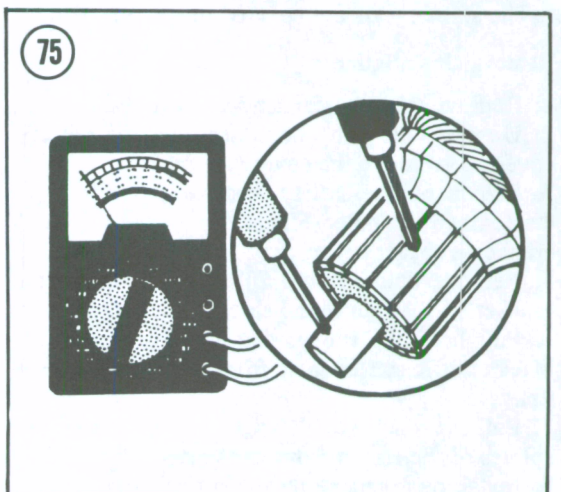
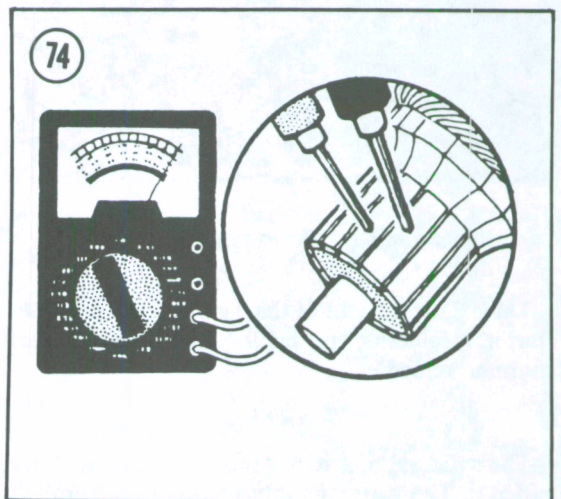
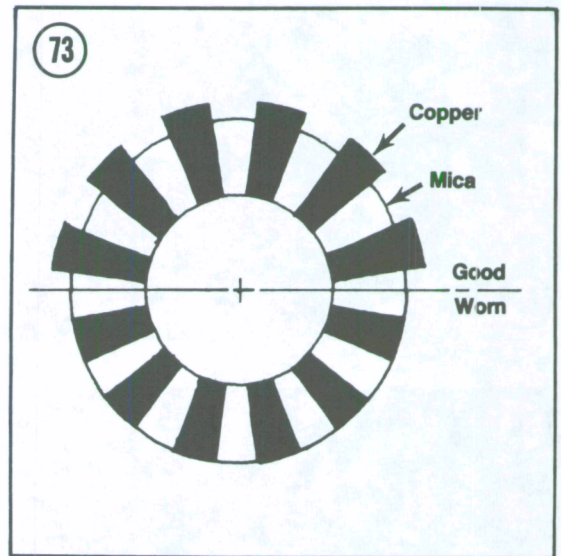
12. Assemble the case as follows:

- a. Align the pin on the brush plate with the notch in the starter case and push the brush plate all the way down until it seats completely in the case.
- b. Be sure to install all shims on the shaft next to the commutator.
- c. Align the pin on the brush plate with the notch in the end cap and install the end cap.
- d. Install the case bolts and tighten securely.

## STARTER SOLENOID

### Removal/Installation

1. Remove the seat/rear fender assembly.
2. Unscrew the wing bolts securing the battery cover and remove the cover (**Figure 36**).
3. Disconnect the battery positive and negative leads.
4. Remove the screws securing the solenoid cover and remove the cover (**Figure 33**).



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